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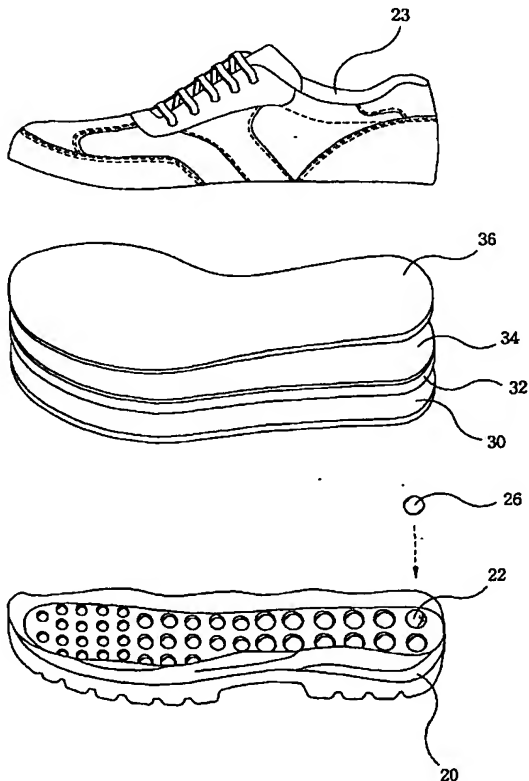
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(54) Title: HEALTH SHOES



(57) Abstract: The present invention relates to health shoes and, more particularly, health shoes not only used for lower body muscle power strengthening exercises but also used as everyday shoes by having excellent fitness due to its flexibility and elasticity. It is an object of the present invention to provide health shoes which can maximise lower body muscle power strengthening exercise, quick explosive muscular strength enhancing exercise and aerobic exercise, etc. by forming a metal ball at the bottom part of the shoes.

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HEALTH SHOES

TECHNICAL FIELD

5 The present invention relates to health shoes and, more particularly, health shoes not only used for lower body muscle power strengthening exercises but also used as everyday shoes by having excellent fitness due to its flexibility and elasticity.

BACKGROUND ART

10 Generally, almost all shoes worn when working out or practicing other sports are not only light, but also have spikes attached thereto in order to prevent sliding depending on which sports it is, or are provided with functions which will, for example, enhance jump power by applying air thereto.

 However, said shoes can only be worn for sports games or workout, and are
15 not helpful in lower body muscle power strengthening exercises and explosive muscular strength enhancing exercises.

Therefore, athletes, tennis players, baseball players or general people doing lower body exercises have been wearing heavy sandbags 2 on their calves when exercising as shown in Fig. 1.

5 In such case, sandbags 2 can easily slip down even by a little walking or running. And, when the strap is tied tightly in order to prevent this, blood in the calf area cannot be circulated smoothly. Also, when exercising for a long period of time with the strap tied tightly, a problem can be generated such as damage to the skin of the calf where the knot is tied.

10

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a drawing illustrating how a sandbag is worn on the ankle in order to strengthen lower body muscle power and enhance explosive muscular strength, as in prior art.

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Fig. 2 is a drawing illustrating the health shoes of the present invention wherein each part is separated.

Fig. 3 is a drawing illustrating a sectional view of the health shoes of the present invention.

Fig. 4 is a drawing illustrating the bottom rubber sole of the health shoes of
5 the present invention.

Fig. 5 is a partial sectional view of a drawing illustrating how the health shoes of the present invention are worn.

DISCLOSURE OF THE INVENTION

10 Accordingly, the present invention was invented in order to overcome the above disadvantages of prior art. It is an object of the present invention to provide health shoes which can be worn in everyday life without any difficulty and which can maximize lower body muscle power strengthening exercise, quick explosive muscular strength enhancing exercise and aerobic exercise, etc. by increasing its
15 weight by forming a metal ball on the bottom part of the shoes at the same time of maintaining flexibility and elasticity of the shoes itself.

BEST MODE FOR CARRYING OUT THE INVENTION

The health shoes of the present invention invented in order to obtain the above objects will be described with reference to the accompanying drawings as follows.

The operation of the airbag switch device of the air bumper of the present invention comprised as above will be described in detail with reference to the accompanying drawings as follows.

The health shoes of the present invention comprised as above will be described in detail with reference to the accompanying drawings as follows.

Fig. 2 is a drawing illustrating the health shoes of the present invention wherein each part is separated; Fig. 3 is a drawing illustrating a sectional view of the health shoes of the present invention; Fig. 4 is a drawing illustrating the bottom rubber sole of the health shoes of the present invention; and Fig. 5 is a partial sectional view of a drawing illustrating how the health shoes of the present invention are worn. As shown in the drawings, as the lower part of the outer cover of the shoes 23, a bottom part generally applied to shoes, comprising cumulate layers including a layer of cup in sole layer 36, middle sole layer 34,

high elasticity sponge layer 32, and cushion layer 30, is formed.

Also, as the lower part of said cushion layer 30, a bottom rubber sole 20 is formed in order to prevent sliding when contacting with the ground.

5 On said bottom rubber sole 20, a plurality of seat holes 22 formed in the length direction of the upper side and hollowed out in the thickness direction, are formed.

Further, a heavy metal ball 26 is fixed in the seat hole 22 of said bottom rubber sole 20, in order to increase the weight of the shoes.

And, said seat hole 22 is formed to have a hole whose diameter gradually reduces
10 from the heel part to the front part of bottom rubber sole 20.

Also, at the front part of said bottom rubber sole 20, a plurality of refraction line holes 40 are formed in the width direction.

The metal ball 26 fixed in said seat hole 22 may be fixed according to the interference fit. However, it is preferable to attach it using an adhesive because it may fall
15 off when being used for a long period of time.

Also, the metal ball 26 of the present invention varies in size in order to reduce the

load on the ankle and sole of the foot.

That is, the seat hole 22 at the heel part of the bottom rubber sole 20 is formed in a larger size, and it is formed in a smaller size as going towards the front part.

5 Therefore, also smaller metal balls 26 are received in said seat holes 22 in order to fit the size of the seat holes 22.

And, by making the heel part first contacting with the ground heavier and making the front part a little lighter, the user may easily take his feet off the ground and feel less fatigue when wearing the shoes while walking.

10 That is, it is preferable to form the part near the ankle, which is the part receiving force heavier, and the front part of the foot which does not receive force lighter so as to make it into a form appropriate for walking.

Also, as shown in Fig. 4, the refraction line hole 40 formed in the width direction at the front part of the bottom rubber sole 20 is characterized in that it is formed so as to
15 form a vacant space traversing the bottom rubber sole 20 in the width direction.

The refraction line hole 40 formed on the bottom rubber sole 20 as above, is bent

as a bow, so that the bottom rubber sole 20 is formed in a form identical to the sole of the foot when the bottom rubber sole 20 touches the heel as in Fig. 5 and the heel falls off the ground as moving forward.

5 If the bottom rubber sole 20 is bent as above, it can be easily folded as the diameter gets smaller and refracts according to the change of the formation of the walking foot, because the inner diameter of the refraction line hole 20 is formed as a vacant space.

At this time, the refraction line hole 40 formed at the front part of the bottom rubber sole 20 may not be used. However, if there is no refraction line hole 40 on the
10 bottom rubber sole 20, the bottom rubber sole 20 will not bend off easily, and thus fatigue can easily be built up on the ankle. Thus, it is preferable to form a refraction line hole 40 at the front part of the bottom rubber sole 20.

Also, by fixing a metal ball 26 in the seat hole 22 formed at the bottom rubber sole 20 of the present invention, it is characterized in that the metal ball 26 does not easily fall off
15 even when the bottom rubber sole 20 is twisted to the left, right, front or back.

Further, the health shoes of the present invention forms metal balls 26 evenly all

over the bottom surface of the bottom rubber sole 20. Accordingly, it is characterized in that it can be used for long term walks, and thus can keep up a longer exercise time.

5 INDUSTRIAL APPLICABILITY

As described in the above, the health shoes of the present invention shows a great effect in exercises for strengthening lower body muscles such as feet, legs, etc. and aerobic exercises, by having an excellent fitness than when wearing sandbags, and by being easily worn in everyday life, because metal balls are evenly formed on

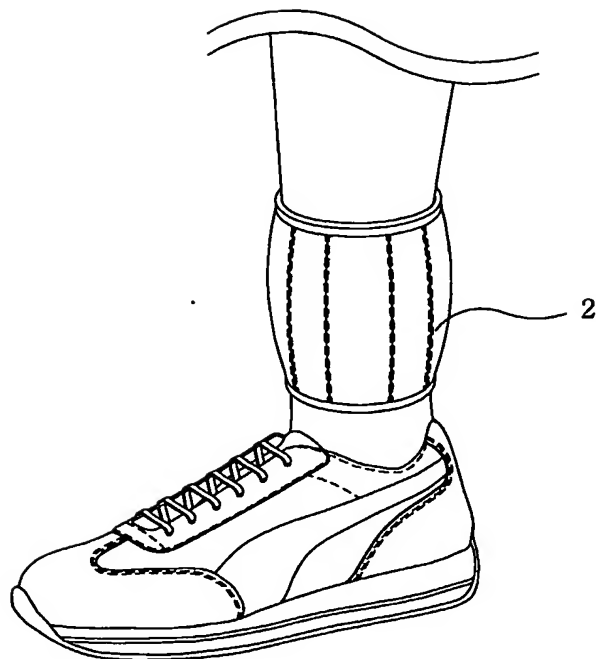
10 the bottom rubber sole of the shoes.

What is claimed is:

1. Health shoes comprising cumulate layers including a layer of cup in sole layer 36, middle sole layer 34, high elasticity sponge layer 32, and cushion layer 30; a plurality of round-shaped seat holes 22 formed in the thickness direction of the bottom rubber sole 20 formed
5 at the lower part of said cushion layer 30; and metal balls 26 to be fixed in said round-shaped seat holes 22.
2. Health shoes according to claim 1, characterized in that the seat hole 22 formed on
10 said bottom rubber sole 20 has a hole whose diameter gradually reduces from the heel part to the front part and the metal ball 26 fixed in said seat hole 22 is formed to be the same size as the diameter of the seat hole 22.
3. Health shoes according to claim 1 or claim 2, characterized in that more than two
15 refraction line holes 40 are formed in the width direction at the front of said bottom rubber sole 20.

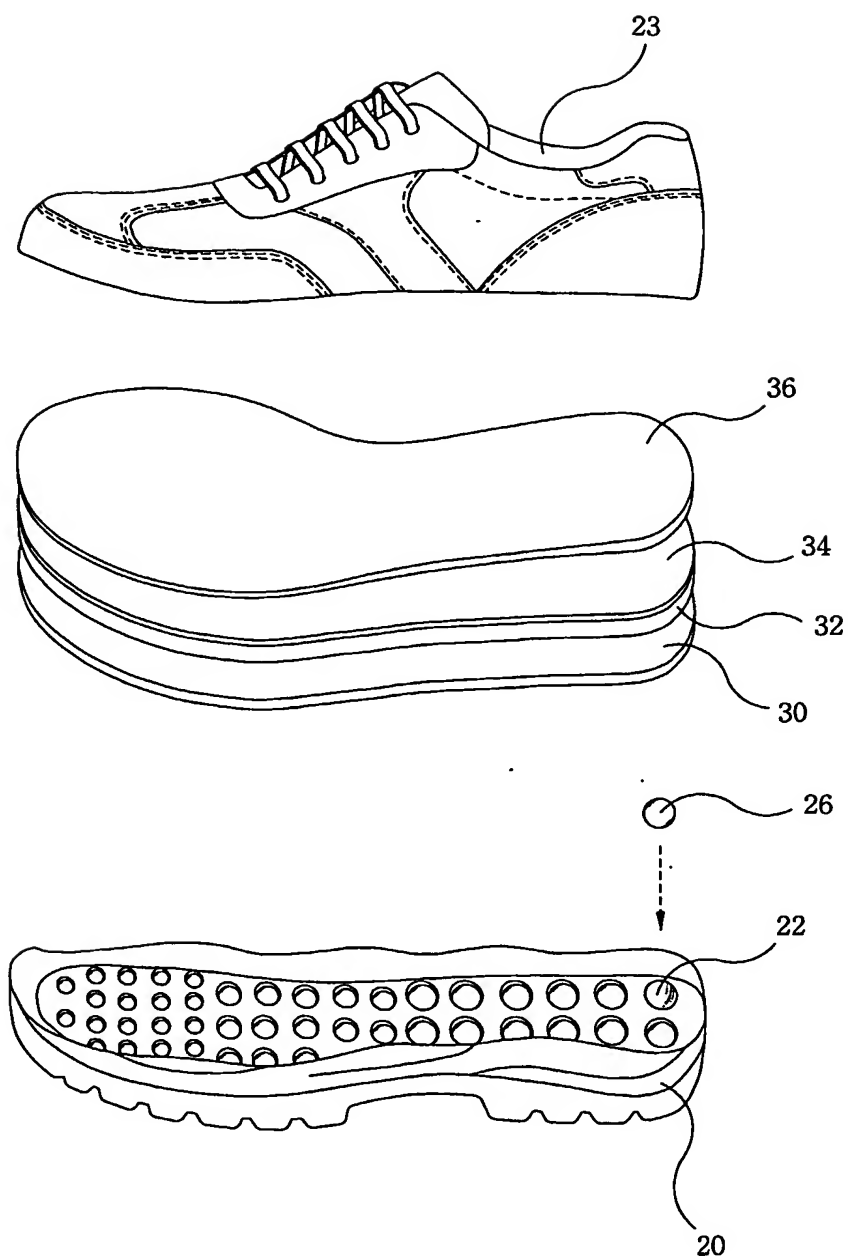
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FIG. 1



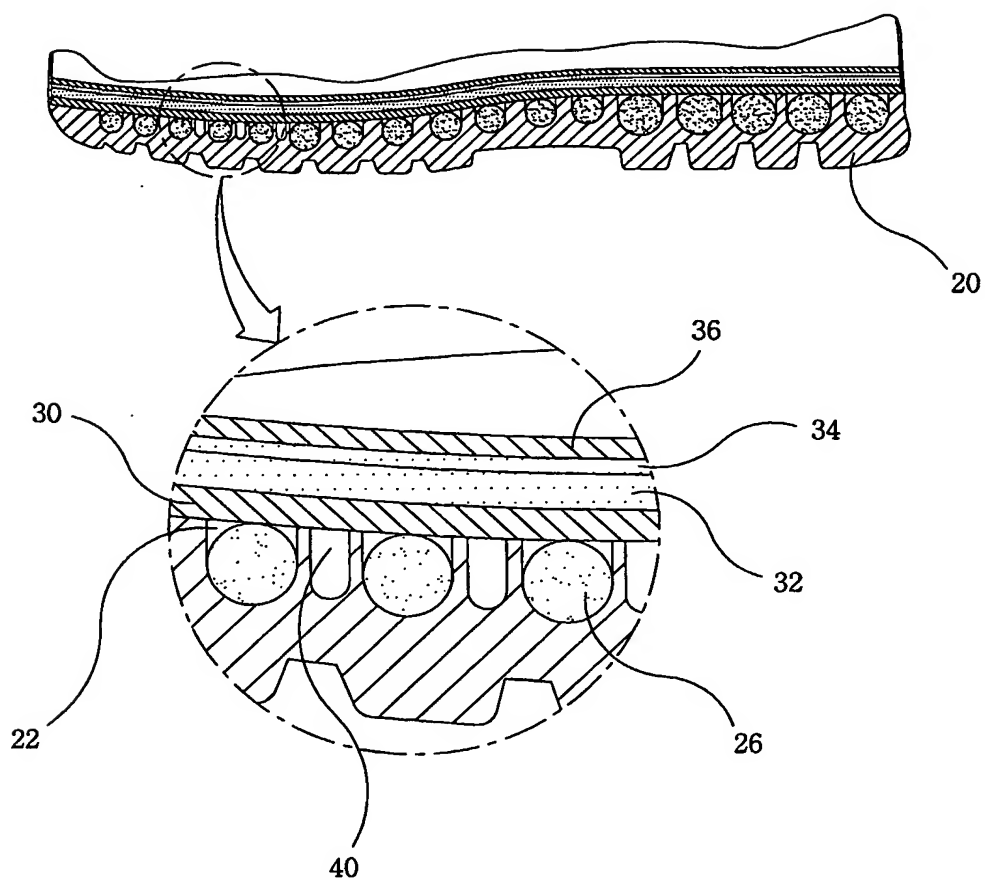
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FIG. 2



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FIG. 3



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FIG. 4

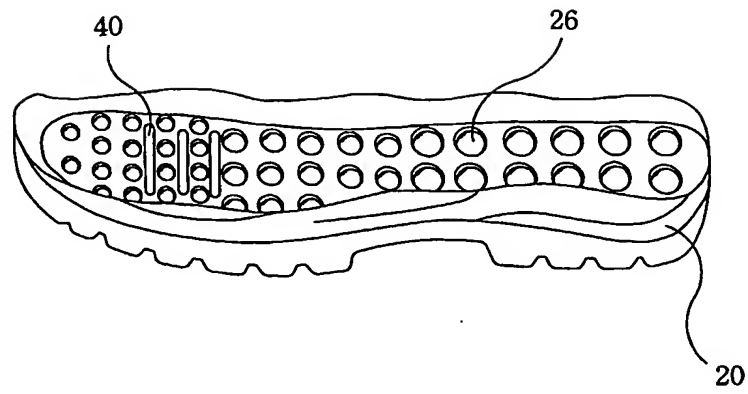
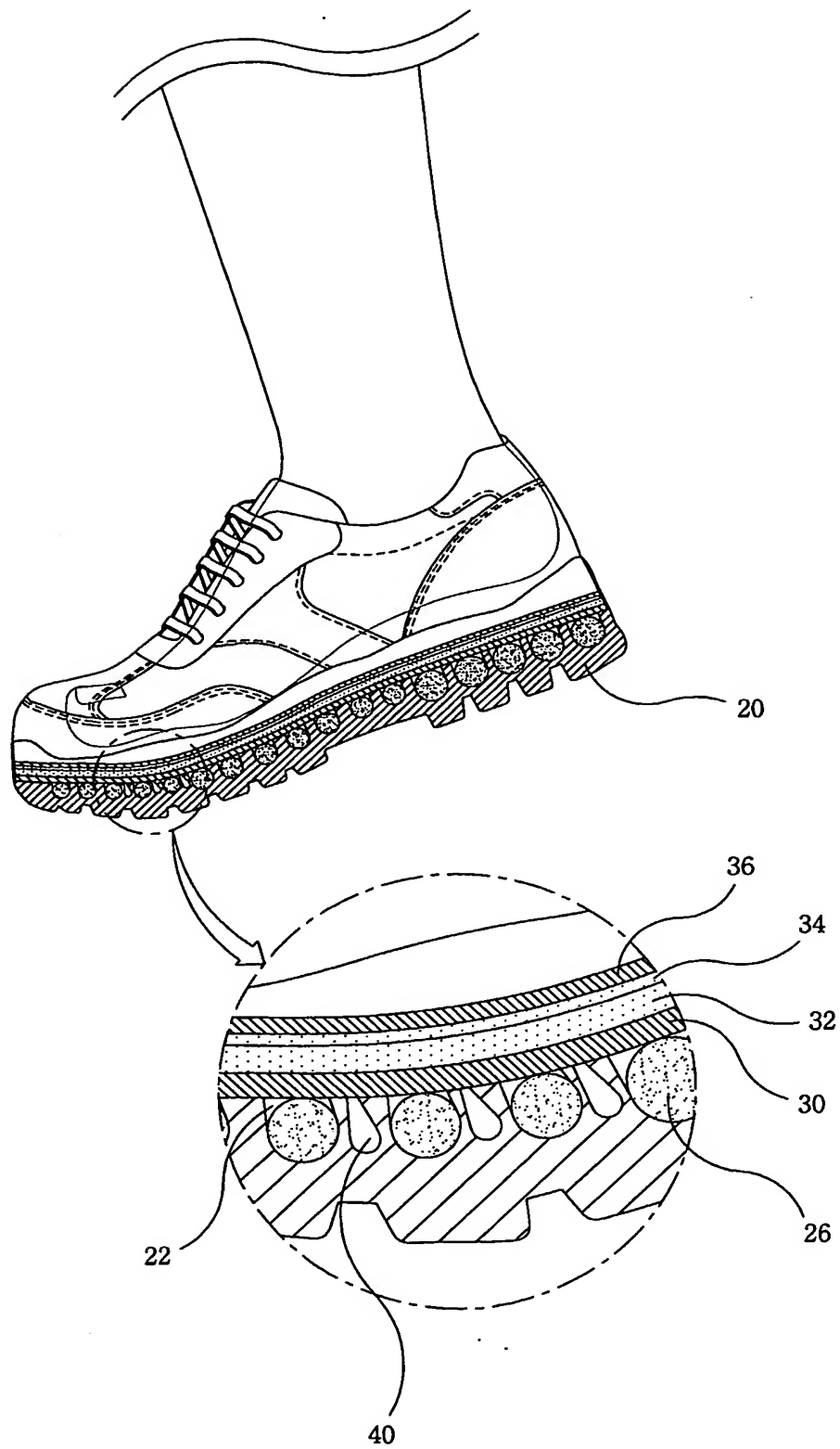


FIG.5

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2004/000305**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 A43B 13/14**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 A43B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
KR, JP : IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 10-165203A(Shimizu Shigeki) 23 June 1998 See page2 [0004]- page3 [0005], claim 1 Figures 1,5	1-2
A	US 5,231,776 A(Rodger D.Wagner) 3 August 1983 See column 2. line 36 - column 2 line 47 Figure 2	1
A	US 5,638,613 A(James H. Williams) 17 June 1997 See the whole document	1
A	JP 11-046806 A(Shiraki Daijiro) 23 February 1999 See the whole document	1
A	Patent Abstracts of Japan, JP 2000-312602 A(Sumitomo Rubber Ind Ltd.)	1

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

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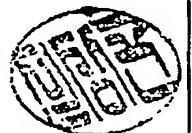
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2004/000305

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 10-165203	23-06-98	None	
US 5,231,776	03-08-93	None	
US 5,638,613	17-06-97	None	
JP 11-046806	23-02-99	None	
JP 2000-312602	14-11-00	None	

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